

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Public Safety and Homeland Security Bureau)	PS Docket No. 17-344
Seeks Comment on Response Efforts Undertaken)	
during 2017 Hurricane Season)	

COMMENTS OF SES S.A. and O3B LIMITED

SES S.A. (“SES”) and its subsidiary O3b Limited (“O3b”) (together, “the Companies”) welcome the opportunity to submit these comments in response to the Commission’s Public Notice on the 2017 Hurricane Season and commend the Commission staff for their tireless support to the communications industry to restore service to Americans in Puerto Rico.¹

I. BACKGROUND

SES is one of the world’s largest commercial communications satellite operators. SES operates more than 50 geostationary (“GSO”) satellites able to reach 99% of the world’s population, many of them pursuant to Commission authority. Operating in the C-band, Ku-band and/or Ka-band, these spacecraft serve broadcasters, direct-to-home (“DTH”) service providers, and corporate and government customers worldwide with offerings that include video and audio content distribution, DTH, private networks, broadband, satellite news gathering, aeronautical and maritime services, and mobile backhaul.

O3b, a wholly-owned subsidiary of SES, operates a constellation of twelve non-geostationary orbit (“NGSO”) satellites in the Ka-band in Medium Earth Orbit (“MEO”) and

¹ See generally Public Safety and Homeland Security Bureau Seeks Comment on Response Efforts Undertaken during 2017 Hurricane Season, PS Docket No. 17-344, DA 17-1180 (rel. Dec. 7, 2017).

offers high-speed, low-latency broadband connectivity where coverage from terrestrial networks is limited or non-existent. O3b specifically offers middle mile capacity to large service providers that use O3b's satellite capacity to deliver service to end users, utilizing the 27.6-28.4 and 28.6-29.1 GHz band for its uplink and 17.8-18.6 and 18.8-19.3 GHz band for its downlink.

II. SES's Response to the 2017 Hurricane Season

The high-quality connectivity that satellites provide on a global basis is ideally suited to support public safety, emergency communications and restoration of communications services. Both GSO and NGSO satellite systems are an ideal substitute for disabled ground-based critical communications infrastructures and can deliver rapid, real-time connectivity to ensure safe and reliable service in affected areas.

As the first satellite operator to deliver a scalable GEO-MEO service offering, SES was able to provide immediate support to help restore service in the aftermath of the 2017 hurricane season. SES Network's FastConnect Solution² supported Alphabet's Project Loon³ and local telecommunications operations to restore 4G/LTE mobile connectivity after Hurricane Maria damaged or destroyed about 95 percent of the Puerto Rico's cellphone towers.⁴ By leveraging

² The FastConnect Solution is a high throughput and fiber-like satellite connectivity service that provides quickly deployable and re-deployable IP Transit bandwidth, with the infrastructure needed to provide network connectivity, when and where it is needed. FastConnect Datasheet, <https://www.ses.com/sites/default/files/2017-10/Datasheet%20FastConnect.pdf>.

³ Project Loon is a network of balloons designed to extend Internet connectivity to people in rural and remote areas worldwide. High speed internet is transmitted up to the nearest balloon from our telecommunications partner on the ground, relayed across the balloon network, and then back down to users on the ground. Project Loon, <https://x.company/loon/>.

⁴ FCC Chairman, Ajit Pai, reported that "Hurricane Maria has had a catastrophic impact on Puerto Rico's communications networks. For example, over 95% of Puerto Rico's wireless cell sites are currently out of service." Hurricane Maria Destroyed 95% of Puerto Rico's Cell Sites, TeleGeography, Sept. 22, 2017

<https://www.telegeography.com/products/commsupdate/articles/2017/09/22/hurricane-maria-destroyed-95-of-puerto-ricos-cell-sites/>; Google Using O3b Satellites to Connect Project Loon

SES's MEO fleet with redundancy provided by C-band capacity on its GSO fleet, SES and Project Loon extended existing carrier service to the "hardest hit parts of the island" where there are no cell towers.⁵

In areas where ground-based communication infrastructure has been disabled by a natural disaster, a satellite connected balloon-based internet network is ideal for quickly restoring connectivity to disaster sites. The collaborative Project Loon-SES solution was also deployed earlier in 2017 to restore connectivity to Peruvians affected by extreme rains and flooding, which caused heavy damage to telecommunications infrastructure. The lower latency and high throughput satellite connectivity helped carry over 160 GB of data to people across a 40,000 square kilometer area.⁶

SES, through its SES government Solutions subsidiary, also provided Ku-band capacity to US Government first responders in Puerto Rico and other Caribbean islands.

Additionally, SES enabled relief efforts by deploying and providing GSO C-band capacity to emergency.lu rapid deployment kits in Saint Martin, Sint Maarten and Dominica.⁷ Emergency.lu, a rapid communications solution for global disaster relief and humanitarian missions, consists of satellite infrastructure and capacity, communication and coordination

Over Puerto Rico, SpaceNews, Oct 23, 2017 <http://spacenews.com/google-using-o3b-satellites-to-connect-project-loon-over-puerto-rico/>. This off-ground NGSO satellite-supported connectivity provides basic communication and internet activities for customers in disaster-affected areas. This includes SMS, text, email, and "basic internet," but no voice service or calling.

⁵ Abner Li, Alphabet deployed emergency LTE to Puerto Rico w/ Project Loon in under a month, 9TO5 Google, Oct. 20, 2017 <https://9to5google.com/2017/10/20/alphabet-x-project-loon-puerto-rico-live/>.

⁶ O3b Networks Works with Project Loon Team to Reconnect People Recovering from Floods in Peru, Business Wire, May 17, 2017 <https://www.ntbinfo.no/pressemelding?releaseId=15170110>.

⁷ Emergency.lu Re-establishes Critical Connectivity in the Caribbean Following Hurricanes Irma and Maria, Sept. 26, 2017, <https://www.ses.com/press-release/emergencylu-re-establishes-critical-connectivity-caribbean-following-hurricanes-irma>.

services, and satellite ground terminals as well as transportation of equipment provided to disaster areas. The emergency.lu kits were quickly deployed to provide internet connectivity for use by emergency personnel in response to hurricanes Irma and Maria. The emergency.lu rapid response kits provided vital satellite-enabled connectivity to the coordination center in Dominica and to restore communications at Princess Juliana Airport in Sint Maarten following Hurricane Maria. Broadband and voice communication delivered via SES capacity ensured that emergency services and first responders could stay informed and connected. Finally, SES contributed C-band capacity free of charge for the national concert organized to benefit the victims of hurricanes Irma and Maria.

III. The Commission Was Instrumental in Enabling SES and O3b Help Restore Connectivity to Parts of Puerto Rico

The Commission's response to Hurricane Maria enabled the Companies to rapidly deploy earth stations and re-establish connectivity to parts of Puerto Rico. Commission staff in the International Bureau's Satellite Division worked with the Companies, including over holidays and weekends, to ensure that applications for Special Temporary Authority and the necessary waivers were granted quickly. With help from the staff, SES and O3b were able to secure all necessary regulatory authority on short notice.

The Commission was similarly helpful and efficient in coordinating SES and O3b spectrum use on site in Puerto Rico. Commission staff were easy to work with and responded in a timely manner when coordinating operations. The Commission's logistical efforts were critical to enabling operations in areas in which power and communications were difficult to access.

IV. Conclusion

The Companies appreciate the efforts by the Commission and its staff to facilitate the speedy deployment of satellite connectivity in Puerto Rico and other islands in the wake of Hurricane Maria. The Commission's collaborative approach and dedication enabled the quick deployment of services in a difficult environment.

Respectfully submitted,

SES S.A.

By: /s/ Petra A. Vorwig

Petra A. Vorwig

Senior Legal & Regulatory Counsel
for SES S.A.

1129 20th Street N.W., Suite 1000
Washington, D.C. 20036
(202) 478-7143

O3b LIMITED

By: /s/ Suzanne Malloy

Suzanne Malloy

Vice President of Regulatory Affairs
O3b Limited

900 17th Street, N.W., Suite 300
Washington, DC 20006
(202) 813-4026

January 22, 2018